

REMARKS

The Office Action dated December 10, 2007 has been received and carefully noted. A telephone interview with the Examiner was conducted on April 23, 2008. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-10 are currently pending in the application. Claims 1, 4, and 5 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 2-3 were previously cancelled. Claims 6-10 were previously withdrawn in relation to a restriction requirement. No new matter has been added. Therefore, claims 1, 4, and 5 are respectfully submitted for consideration.

As a preliminary matter, Applicants thank the Examiner for the courtesy extended in conducting a telephone interview on April 23, 2008. The arguments presented below are similar to the arguments discussed during the interview.

The Office Action rejected claims 1, 4, and 5 under 35 U.S.C. §102(b) as allegedly anticipated by Takizawa (U.S. Patent No. 6,120,711) (“Takizawa”). The Office Action alleged that Takizawa discloses or suggests every claim feature recited in claims 1, 4, and 5. Applicants respectfully traverse these rejections for at least the following reasons.

Claim 1, upon which claims 4 and 5 are dependent, recites a molding machine, which includes an actuator driven by oil supplied thereto, and an accumulator disposed along an oil passage which supplies oil to the actuator. The molding machine further includes a drive pressure sensing section which senses the drive pressure for driving the

actuator, and a charge pressure sensing section which senses the charge pressure of the accumulator. The molding machine further includes a charge pressure setting processing portion which sets the upper limit of the charge pressure on the basis of the pressure difference between the minimum sensed charge pressure of the charge pressure which is sensed and the maximum sensed drive pressure of the drive pressure which is sensed.

As will be discussed below, Takizawa fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above.

Takizawa generally discloses a method of controlling an accumulator connected to an oil hydraulic circuit of an injection molding machine. A charge start point and a charge end point for the accumulator are set for each of the molding cycles or for each of the steps constituting a single molding cycling. Takizawa further discloses that, during molding, control is performed such that the charge start point and the charge end point are synchronized with each molding cycle. (see Takizawa at Abstract).

Applicants respectfully submit that Takizawa fails to disclose, teach, or suggest, all of the elements of the present claims. For example, Takizawa fails to disclose, teach, or suggest, at least, “a charge pressure setting process portion which sets the upper limit of the charge pressure on the basis of the pressure difference between the minimum sensed charged pressure of the charge pressure which is sensed and the maximum sensed drive pressure of the drive pressure which is sensed,” as recited in independent claim 1.

Takizawa discloses that, in a method of controlling an accumulator, a pressure sensed by the pressure sensor 22 (which the Office Action interprets as the “charge

pressure sensing section,” recited in claim 1) is sent to an arithmetic operation unit 26, and that the arithmetic operation unit 26 supplies a load signal S_0 to the control valve 21. (see Takizawa at column 3, lines 6-12). Takizawa further discloses that the charge pressure P_c of the accumulator 2 (which the Office Action interprets as the “accumulator,” recited in claim 1) is measured at the beginning and at the end of every step of molding. Furthermore, Takizawa discloses that a maximum load pressure P_{op} is obtained from load pressures during a single cycle of molding, and that a load pressure P_o is sensed by the pressure sensors 23 and 24 (which the Office Action interprets as the “drive pressuring sensing section,” recited in claim 1). (see Takizawa at column 3, lines 23-30). Finally, Takizawa discloses that P_d represents the differential pressure of the servo value 4, and that the differential pressure P_d is added to the maximum load pressure P_{op} to determine the charge pressure P_c . (see Takizawa at column 3, lines 34-35, 38-41).

Applicants respectfully submit that Takizawa fails to disclose or suggest determining a minimum charge pressure of the accumulator. Furthermore, Takizawa fails to disclose or suggest determining a pressure difference based on a minimum charge pressure of the accumulator. While Takizawa discloses a differential pressure P_d , this differential pressure is not calculated based on a minimum charge pressure of the accumulator. Instead the arithmetic operation unit 26 calculates the differential pressure P_d using the formula $P_d = \{(v \cdot S) / (C \cdot A)\}^2$, where v represents a piston speed of the injection cylinder 3 indicative of an injection speed, S represents the piston area of the injection cylinder, C represents a flow coefficient, and A represents the opening area of

the servo valve. (see Takizawa at column 3, lines 31-39). Thus, the calculation of the differential pressure in Takizawa is completely independent from any minimum charge pressure of the accumulator.

In contrast, according to embodiments of the invention, a differential pressure ΔP between the minimum sensed charge pressure CP_{min} and the maximum sensed drive pressure DP_{max} is determined, and thereby, the upper limit CPH is set so as to make the differential pressure ΔP equal to a reference pressure α . (see Specification at paragraphs 0032-0033). Thus, according to embodiments of the invention, the differential pressure is based, in part, on the minimum sensed charge pressure CP_{min} .

Therefore, for at least the reasons discussed above, Takizawa fails to disclose, teach, or suggest, all of the elements of independent claim 1. For the reasons stated above, Applicants respectfully request that this rejection be withdrawn.

Claims 4 and 5 depend upon independent claim 1. Thus, Applicants respectfully submit that claims 4 and 5 should be allowed for at least their dependence upon claim 1, and for the specific elements recited therein.

For at least the reasons discussed above, Applicants respectfully submit that the cited prior art references fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1, 4, and 5 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Petition for Extension of Time
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